Stratford paper, and limited to 394 copies of which 210 were taken in advance of publication. It is a beautiful example of the bookmaker's art. Ginn and Company deserve heartiest congratulations.

<div align="right">R. C. ARCHIBALD.</div>

Primitive Groups. By W. A. MANNING. Part I. (*Stanford University Publications, University series,* Mathematics and Astronomy, volume 1, no. 1.) Stanford University, California, 1921. Royal 8vo. 108 pages. Paper. Price $1.25.

Preface: "Some knowledge of Algebraic Numbers and of the ordinary Theory of Numbers is assumed to have been acquired by the reader by way of preparation for a serious study of the subject of which this volume treats.

"An apology may be in order for the arrangement of the subject matter. It was arranged as it is to meet the needs of actual instruction. The use of 'group characteristics,' as developed by Frobenius, should be a familiar tool in the hands of the student as early as possible. Therefore linear substitutions are taken up in the third chapter. From the point of view of strict logic this study of linear substitutions and of linear groups should be quite fully developed before those very special substitutions which we call permutations are considered. But the idea of groups of non-commutative operations can, in the author's opinion, be best gained from a few lessons on the concrete and familiar permutations of a finite number of letters. Therefore the first two chapters are intended to familiarize the learner with the simpler processes used in Group Theory, to exhibit the fundamental theorems which admit of briefly worded proof, and to prepare the way for the more difficult developments of linear groups. Moreover, since any 'abstract' group of finite order is isomorphic to some group of permutations, it would seem that sufficient generality can be attained if the phraseology of the abstract theory is ignored, as is done in this book.

"In talking of prime numbers it is admitted that it is a matter of indifference whether unity is included among the primes or not. May one be permitted the same license, if for the sake of convenience in stating certain theorems, the identical substitution alone is denied the dignity of being called a group (§ 4)? The new terms 'similar groups' (§ 16), 'open product' (§ 21) and 'uniprimitive group' (§ 37) seem useful and necessary.

"In justification of the publication of these pages in our University series, it may be stated that some of the material to be found in the volume is new. In particular, theorems II of § 37, I of § 38, and I of § 45 have not been published elsewhere.

"Among the sources from which the author has drawn inspiration and material the following treatises should be mentioned: Jordan, *Traité des Substitutions;* Weber, *Lehrbuch der Algebra;* Burnside, *Theory of Groups;* Dickson, *Linear Groups;* Miller, Blichfeldt and Dickson, *Finite Groups;* Blichfeldt, *Finite Collineation Groups;* Hilton, *Linear Substitutions.*

"But the memoirs of Jordan and of Frobenius have contributed more by way of suggestion and encouragement than any books."

Contents—Chapter I: The elementary theory of groups of permutations, 7–27; II: Transitive groups, 28–44; III: Group characteristics, 45–69; IV: Applications of group characteristics, 70–80; V: Transitive groups, 81–91; VI: Primitive groups with transitive subgroups of lower degree, 92–108.

Computing Jetons. By D. E. SMITH. (*Numismatic Notes and Monographs,* no. 9.) New York, The American Numismatic Society, 1921. 16mo. 2 + 70 pp. + 5 plates. Paper cover, price $1.50.

This monograph, embellished with 20 pages of illustrations in addition to the plates, is based upon an address delivered by the author before the American Numismatic Society, in New York City, on February 7, 1921. Introductory paragraphs: "In accepting the invitation . . . to speak upon the subject of Computing Jetons, I have naturally considered the possibility of offering something that might appeal to its members as not already familiar. Few works upon any subject relating to numismatics are so exhaustive in their special fields as the monumental and scholarly treatise of Professor Francis Pierrepont Barnard (*Casting-Counter and Counting-Board,* Oxford, 1916), and hence it may seem quite superfluous, and indeed presumptuous, to attempt to supplement such a storehouse of information.

"Professor Barnard, however, approached the subject primarily from the standpoint of a numismatist, a field in which he is an acknowledged expert, as witness the honor that has recently come to him in his appointment as curator of coins and medals in the Ashmolean Museum at Oxford, and so it has seemed to me that I might make at least a slight contribution by approaching it from the standpoint of a student of the history of mathematics. It would, in that case, be natural to consider primarily the need for, the use of, and the historical development of the jeton in performing mathematical calculations, and this is the pleasant task that I have set for myself in preparing this monograph.

"Although Professor Barnard has also considered this field, I hope to contribute something in the way of illustrative material, at least, and perhaps to make somewhat more prominent the early history of a device which, in one form or another, seems to have dominated practical calculation during a good part of the period of human industry."

Contents—Necessity for aids in computation, 3–5; The dust abacus, 6–7; Early forms of the line abacus, 7–8; The Roman counters, 8–10; The abacus in the orient, 11–14; The Gerbert abacus and jetons, 15–16; The late European line abacus, 17–29; Names for counters or jetons 30–33; The exchequer, 34–36; Method of computing with jetons, 37–63; History of minted jetons, 64–69; Summary 69–70.

Manhood of Humanity. The Science and Art of Human Engineering. By ALFRED KORZYBSKI. New York, E. P. Dutton & Co., 1921. 8vo. 17 + 264 pp. Price $3.00.

The publishers state that Professor C. J. KEYSER refers to this book [1] as follows: "a momentous contribution to the best thought of these troubled years. It is momentous in what it contains, even more so in what it suggests, and most of all, I dare say, in the excellent things it will eventually help men and women to think and say and do. Its core is a great conception, which is new; it is a conception of man in terms of Time. Like all really great ideas, it is intelligible to all and is universal in its interest and appeal. It is, I believe, destined to light the way in all the cardinal concerns of human kind."

Contents—Chapter I: Introduction (Method and processes of approach to a new concept of life), 1–26; II: Childhood of humanity, 27–45; III: Classes of life, 46–65; IV: What is man? 66–92; V: Wealth, 93–118; VI: Capitalistic era, 119–138; VII: Survival of the fittest, 139–154; VIII: Elements of power, 155–166; IX: Manhood of humanity, 167–203; X: Conclusion, 204–208. Appendices—(a) Mathematics and time-binding, 209–223; (b) Biology and time-binding, 224–254 [pages 245–250: quotations from Karpinski, Benedict and Calhoun's *Unified Mathematics* on laws of growth, the curve of healing of a wound, wave motion]; (c) Engineering and time-binding, 255–264. There are numerous references to the literature of the subject.

Latitude Developments connected with Geodesy and Cartography, with Tables including a Table for Lambert Equal-Area Meridional Projection. By O. S. ADAMS. (Department of Commerce, U. S. Coast and Geodetic Survey, special publication no. 67.) Washington, Government Printing Office, 1921. 12mo. 132 pp. Price 20 cents.

Foreword (first two paragraphs): "There are five different kinds of latitude that come under consideration in the application of mathematical analysis to questions of geodesy and cartography. It is the aim of this publication to express the difference between the geodetic or astronomic latitude and each of the various four other kinds of latitude in a series of the sines of the multiple arcs. This difference in each case is obtained in an expression in the sines of the multiple arcs of the geodetic or astronomic latitude and also in a series of the sines of the multiple arcs of the other latitude in question.

"The analysis connected with the development of both the isometric or conformal latitude and of the authalic or equal-area latitude is given in some degree of detail, since it is a good example of the application of mathematical analysis to such questions."

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[1] The ideas of the book are the basis of an address, by Professor Keyser, published in *Science,* September 9, 1921, pp. 205–213.